Should I fertilize mature trees that are left after construction? Do so in combination with aerating, watering, and mulching. Be sure to use slow release or WIN fertilizer so there's no burn potential. Since roots probably were damaged or removed, reduce fertilizer quantity.

Are there differences in fertilizer quality? Differences exist due to formulation and packaging - little difference should exist in raw ingredients. For example, fertilizer spikes and fertilizer granules may contain equal amounts of N in available nutrients, but the spikes will cost significantly more.

Can I use pesticides in conjunction with fertilizer? Some pesticide/fertilizer combinations are premixed; for example, turf preemergent herbicide/ fertilizer products. They are not premixed for ornamentals due to differences in species requirements and tolerances. Also, there is more even distribution of both if applied separately as they can be hard to keep evenly mixed unless in liquid form. *Don't apply liquid fertilizer and liquid herbicide with the same sprayer, unless your fertilizer instructions specifically recommend mixing.*

Can fertilizer be harmful to the environment? If improperly applied, especially in high concentrations, it can kill earthworms. If you apply too much N, it can stimulate too much vegetative growth at the expense of flower/fruit formation. Overfertilized lush plants are more susceptible to pests and drought. Applying too much fertilizer or at the wrong time can increase leaching into groundwater. Fertilizer increases the rate of decomposition of organic material, so it's important to add more organic matter periodically.

When should I apply fertilizer? Timing is more critical if you use a fast release fertilizer - either early spring or late fall application is most effective, when roots are growing but top is slow or dormant. Avoid late summer fast release fertilizer application, as it may cause a flush of tender growth that will be damaged by frost. A slow release fertilizer may be applied anytime during the growing season.

My soil test says "high in PK" - should I use 10-10. 10 fertilizer? No – you may add N in the form of ammonium nitrate, but be very careful not to overfertilize. By using only what your soil needs, you will protect groundwater and save money!

For more information on selection, planting, cultural practices, and environmental quality, contact your local Virginia Cooperative Extension Office. If you want to learn more about horticulture through training and volunteer work, ask your Extension agent about becoming an Extension Master Gardener. For monthly gardening information, subscribe to *The Virginia Gardener Newsletter* by sending your name and address and a check for $5.00 made out to "Treasurer, Va. Tech" to The Virginia Gardener, Department of Horticulture, Virginia Tech, Blacksburg, VA 24061-0349. Horticultural information is also now available on the Internet by connecting with Virginia Cooperative Extension's server at http://www.ext.vt.edu

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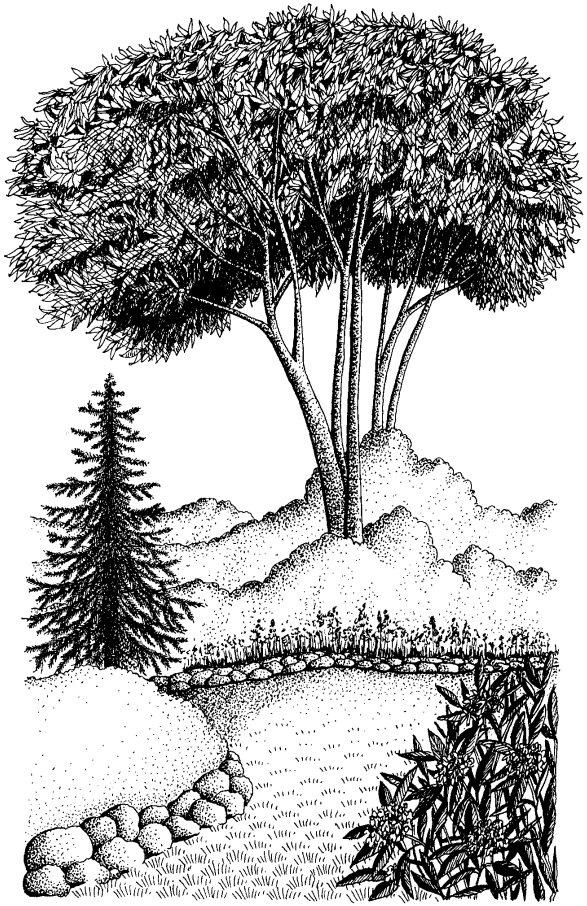
Virginia Gardener

Fertilizing Trees and Shrubs



Virginia Cooperative Extension

Virginia Tech 1872
VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

VIRGINIA STATE UNIVERSITY

Fertilizing Trees and Shrubs

Trees and shrubs are the foundation of a good landscape and an important part of your home. They lend not only beauty and shade, but increase the value of your property as well. It pays to care for them properly.

Fertilizing

In urban or suburban neighborhoods, trees and shrubs often need fertilizing. Modern home-building methods create adverse growing conditions for plants. Often, good topsoil is completely removed and not replaced. Heavy machinery scrapes and compacts fertile soil, reducing its aeration and drainage. Plants are crowded by streets and sidewalks, and must compete with grass for nutrients. Proper fertilization is especially important to landscape plants in this type of environment.

What Nutrients Are Needed?

Get a soil analysis before you fertilize. This will help you determine what nutrients your plants need (obtain soil test forms and instructions at your local Extension office). If the soil test recommends lime, apply it; this balances the soil pH and helps plants absorb nutrients more efficiently.

You should also watch for some of the following symptoms of nutrient deficiency: pale green or yellow leaves, reduced leaf size and retention, premature fall coloration and leaf drop, reduced twig and branch elongation and retention, yellowing along the leaf veins, and overall reduced plant growth and vigor.

To avoid potential nutrient deficiencies, you can establish a fertilization schedule for young and newly transplanted trees and shrubs. Fertilize annually for two years with slow release fertilizer to promote their establishment in the landscape. Fertilize every two years until the plant matures if it is not in already fertilized turf. Fertilize mature trees and shrubs if growth seems inadequate.

Pick The Right Fertilizer

Complete fertilizers contain the three nutrients plants need in the largest amount for optimum growth – nitrogen (N), phosphorus (P), and potassium (K). A fertilizer labeled “10-10-10” contains 10% nitrogen, 10% phosphorus, and 10% potassium. Consequently, a 50 pound bag of 10-10-10 contains only 5 pounds of actual nitrogen. Whether you use organic or synthetic fertilizers, try to find one with a high percentage of water-insoluble nitrogen (WIN); this is a slow-release form of nitrogen — becoming available as the plant can use it — that will not wash, or leach, through the soil into groundwater.

Apply The Correct Amount

Specialists recommend applying fertilizer over the entire root zone of a plant. Consequently, the amount you apply will depend on how many square feet are covered by the plant’s roots.

To determine a plant’s root zone, you must first know the radius of the plant’s roots. Root radius is at least twice the radius of the plant’s crown. For example, if the branches of a tree appear to spread about 15 feet from the trunk, then the roots spread at least 30 feet. To Find the total square feet covered by the roots, use the formula 3.14 X (root radius) X (root radius). In the example given above, this would be:

3.14 x 30 x 30= 2,826 square feet

Once you know the total area in square feet covered by the roots, you can estimate the amount of fertilizer you need. When you fertilize evergreens, use 1 to 3 pounds per 1000 square feet. For plants that lose their leaves, use no more than 2 pounds of fertilizer per thousand square feet in one application otherwise, plants may be burned.

Apply Fertilizer Properly

The easiest and most effective method of supplying nutrients to the entire root system of the plant is broadcasting — spreading granular fertilizer evenly over the entire root zone. Be sure to keep fertilizer away from driveways and other paved surfaces, as it can wash into storm drains and lower the water quality of our streams and bays.

Digging or drilling holes throughout the root zone and partially filling them with fertilizer is not effective, as most of the feeder roots of a tree or shrub are in the upper layer of soil, and drilling puts the fertilizer below the level of the feeder roots.

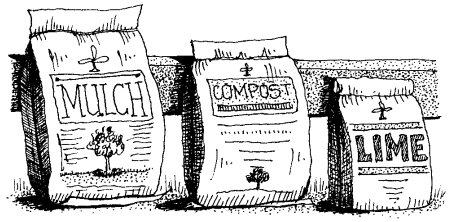
Questions and Answers

If I fertilize the lawn around my trees and shrubs regularly, do I have to apply extra fertilizer for my trees and shrubs, too? Probably not — a good lawn fertilization program will usually provide enough nutrients for landscape plantings in the lawn as well. Monitor the vigor and color of the landscape plantings and apply extra nutrients only if needed.

Should I water before or after fertilizing? Do not water before fertilizing, as the water on the grass will tend to make the fertilizer stick to the grass blades and burn them. Spread the fertilizer and then irrigate. The water will wash the fertilizer off the grass and into the soil, where the roots can use it.

Certain plants are not doing well even though I fertilize regularly – what is wrong? Some plants require acid soil, some need alkaline soil – for example, rhododendrons and azaleas require acidic soil to thrive. Or plants might have a specific micronutrient deficiency, or the nutrient balance could be off. For accurate results, do another soil test requesting analysis for micronutrients.

I use mulch, compost, and lime on my garden - is there any need to fertilize, too? Yes – your soil needs a good source of NPK – organic or synthetic. Mulch, compost, and lime enhance the plants’ ability to use these nutrients, but do not supply them.



Should I keep kids and pets off the fertilized area? Probably not – after they are well watered, nutrient fertilizer granules in soil or mulch should pose no problem. The amount a child or pet could consume from the landscape is not enough to hurt them. If you use larger pellets or fertilizer stakes, be sure they are buried so children and pets won’t try to eat them. Some fertilizer salts could burn or cause skin irritations. If your fertilizer is a blend that includes pesticides, it is toxic - follow label instructions carefully.